

PROCEEDINGS
OF THE
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FOURTH SERIES

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AUGUST 4, 1920

XIV

Report of the President of the Academy
for the Year 1919

BY

C. E. GRUNSKY

President of the Academy

XV

Report of the Director of the Museum
for the Year 1919

BY

BARTON WARREN EVERMANN

Director of the Museum

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PROCEEDINGS

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Pages 259-310. XIV. The Ants of the Galapagos Islands. By William Morton Wheeler. (<i>Issued June 16, 1919</i>)	
XV. The Ants of Cocos Island. By William Morton Wheeler. (<i>Issued June 16, 1919</i>)	
XVI. A New Species of the Hymenopterous Genus <i>Scleroderma</i> from the Galapagos Islands. By Charles T. Brues. (<i>Issued June 16, 1919</i>) Price for the three papers25

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XIV

REPORT OF THE PRESIDENT OF THE ACADEMY
FOR THE YEAR 1919

BY
C. E. GRUNSKY
President of the Academy

The Academy has during the year 1919 continued its activities in research work and on the installation of museum exhibits. The effectiveness of this work is apparent to any one who visits the research departments and the halls, gradually being filled with the habitat groups of mammals and birds and with other exhibits. But when the halls are filled, when the space for habitat groups is exhausted, there is still room for larger service and the Academy stands ready to render the service to the full limit of means placed at its disposal.

Having reached the point where the installations in the Bird and Mammal halls have filled nearly all the large alcoves, it was thought timely by the Council to make some active effort to increase the membership. A committee was named for this purpose, with Mr. M. Hall McAllister as Chairman. The effectiveness of the committee's work is already apparent in the larger membership which can now be reported.

August 4, 1920

The membership in the Academy at the close of the year 1918 was 455, and at the close of 1919 it was 550, a gain of 95.

The present membership is made up of:

Patrons	7
Honorary Members	33
Life Members	82
Fellows	20
Members	408

During the year 1919, 115 new members were admitted and the Academy lost by death 11, and by resignation 5.

Those who were called by death are as follows:

Mr. James V. Coleman.....	Life	April 13, 1919
Dr. Washington Dodge	Member.....	June 30, 1919
Prof. William G. Farlow.....	Honorary.....	June 3, 1919
Mrs. Phoebe A. Hearst	Life.....	April 13, 1919
Mr. A. Legallet.....	Member.....	December 13, 1919
Mr. Jesse W. Lilienthal.....	Member.....	June 3, 1919
Mr. James K. Lynch.....	Member.....	April 28, 1919
Mr. George T. Page.....	Member.....	June 30, 1919
Mr. Osgood Putnam.....	Member.....	January 23, 1919
Mr. Herman Schussler.....	Life.....	April 27, 1919
Mr. Vanderlynn Stow.....	Member.....	July 13, 1919

The Academy carries on its list of patrons the following names:

Living

Mr. William B. Bourn	Mr. A. Kingsley Macomber
Mr. William H. Crocker	Mr. John W. Mailliard
Mr. Peter F. Dunne	Mr. Joseph Mailliard
Mr. Herbert Fleishhacker	Mr. Alexander F. Morrison
Mr. Joseph D. Grant	Mr. William C. Van Antwerp
Mrs. Charlotte Hosmer	

Deceased

Mr. William Alvord	Mr. James Lick
Mr. Charles Crocker	Mr. Ignatz Steinhart
Mr. John W. Hendrie	

The Treasurer's report for the year 1919 shows total receipts, exclusive of the \$250,000 received from the Ignatz Steinhart estate and the \$5000.00 donation by Mr. Van Antwerp hereinafter referred to, of \$71,328.02, of which \$15,129.32 were paid out as interest. The floating debt of the Academy was practically wiped out. The year's general expenses including the installation of the Fur Seal habitat group and of a number of small bird and mammal groups have been

about \$50,000. The net excess of revenues over expenditures was about \$7000. The assets of the Academy as carried in the book accounts, not including the Ignatz Steinhart Trust Fund, were in round numbers \$1,495,000 at the close of the year, but subject to a debt of \$300,000 for which the Market Street property is a pledge.

During the year 1919, ten free lectures have been delivered at the stated meeting of the Academy, as follows:

- JANUARY 15. How Migrating Birds Find Their Way.
Mr. Leverett Mills Loomis, San Francisco, California.
- MARCH 19. Pine Insects and their Depredations.
Mr. Ralph Hopping, United States Forest Service.
- APRIL 16. Tehachapi as a Faunal Barrier.
Prof. John O. Snyder, Department of Zoology, Stanford University, and Dr. Roy E. Dickerson, California Academy of Sciences.
- MAY 21. The Naked Mollusks of Monterey Bay.
Dr. F. M. MacFarland, Professor of Histology, Stanford University.
- JULY 16. Fish and Game Legislation of the 1919 Legislature.
Mr. Carl Westerfeld, Executive Officer, Fish and Game Commission of California.
- AUGUST 20. Notes on the Birds of Lake County, California.
Mr. Joseph Mailliard, Honorary Curator, Department of Ornithology, California Academy of Sciences.
- SEPTEMBER 10. Egypt, the Land where Ancient and Modern Civilizations Meet.
Mr. I. H. Morse, San Francisco, California
- OCTOBER 1. The Butterfly Map; or The Ground Plan of the World to Scale
Mr. B. J. S. Cahill, Oakland, California.
- NOVEMBER 5. The New Theory of the Aether and of the Molecular Forces.
Captain Thomas J. J. See, Professor of Mathematics, United States Navy.
- DECEMBER 3. The Need of more serious Effort to rescue a Fragment of Vanishing Nature.
Dr. Francis B. Sumner, Professor of Zoology, University of California.

The Sunday afternoon lectures delivered in the Museum building during 1919 were generally attended by about as large an audience as the limited facilities of the temporary auditorium permit. They include the following:

- JANUARY 5. Thirty Thousand Miles in China.
Dr. C. K. Edmunds, President of Canton Christian College, Canton, China.

- JANUARY 12. California's Recreation Ground, Her National Forest.
R. F. Hammatt, Forest Examiner, United States Forest Service.
- FEBRUARY 9. Trees and Shrubs of the Grand Cañon.
Miss Alice Eastwood, Curator, Department of Botany, California Academy of Sciences.
- FEBRUARY 16. The Bacteriology of Peanut Butter.
Dr. Ivan C. Hall, Department of Bacteriology, University of California.
- FEBRUARY 23. Birds of Extreme Northern Alaska.
Joseph Dixon, Economic Mammalogist, Museum of Vertebrate Zoology, University of California.
- MARCH 2. The Natural History and Control of California Ground Squirrels.
Dr. Joseph Grinnell, Director, Museum of Vertebrate Zoology, University of California.
- MARCH 9. Some Philosophical Considerations in Mathematics.
Dr. Rufus L. Green, Professor of Mathematics, Stanford University.
- MARCH 16. Inheritance of Mental Ability.
Dr. S. J. Holmes, Professor of Zoology, University of California.
- MARCH 23. The Natural History of some Bats.
Tracy I. Storer, Field Naturalist, Museum of Vertebrate Zoology, University of California.
- MARCH 30. Mushrooms, Edible and Non-Edible.
Prof. James I. W. McMurphy, Department of Botany, Stanford University.
- APRIL 13. Life History and Habits of Some Marine Crustacea.
Prof. F. W. Weymouth, Department of Zoology, Stanford University.
- APRIL 20. The Hook-worm Campaign in the Mines of California.
Dr. W. W. Cort, Assistant Professor of Zoology, University of California.
- APRIL 27. Military Sanitation.
Major W. B. Herms, Associate Professor of Parasitology, University of California.
- MAY 4. Birds of the High Sierras and their Environment.
Dr. William F. Badè, President, California Associated Societies for Conservation of Wild Life.
- MAY 11. Hunting with a Camera.
Paul J. Fair, Department of Exhibits, California Academy of Sciences.
- SEPTEMBER 14. Insect Life.
Dr. E. C. Van Dyke, Assistant Professor of Entomology, University of California.
- SEPTEMBER 21. Sanitary Milk Production.
Dr. George H. Hart, Associate Professor of Veterinary Science, University of California.
- SEPTEMBER 28. Forests and Forestry in California.
Dr. W. Metcalf, Assistant Professor of Forestry, University of California.
- OCTOBER 5. Plant Breeding.
Dr. E. B. Babcock, Professor of Genetics, University of California.

- OCTOBER 12. The Work of the United States Biological Survey.
Dr. W. P. Taylor, Assistant Biologist, United States Biological Survey, Washington, D. C.
- OCTOBER 19. Pine Insects and their Depredations.
Ralph Hopping, National Forest Examiner, United States Forest Service, San Francisco.
- OCTOBER 26. California's Future; What the Forest Service is doing to determine and meet the coming demands for Timber and other National Forest Resources.
C. A. Kupfer, Forest Examiner, United States Forest Service, San Francisco.
- NOVEMBER 2. Some Forestry Problems, both Government and Private.
R. F. Hammatt, Forest Examiner, United States Forest Service, San Francisco.
- NOVEMBER 9. Range Management on the National Forests in California.
F. D. Douthitt, Grazing Examiner, United States Forest Service, San Francisco.
- NOVEMBER 16. Industrial Research in the Forest Service.
Don P. Johnston, Assistant District Forester, United States Forest Service, San Francisco.
- NOVEMBER 23. The Trees and Flowers of the High Sierras.
Prof. Howard G. McMinn, Department of Botany, Mills College.
- NOVEMBER 30. How the Map of Europe Has Been Redrawn.
Prof. Earle G. Lindsley, Department of Geography and Geology, Mills College.
- DECEMBER 7. Hook-worm and Human Efficiency.
Major Charles A. Kofoed, Professor of Zoology, University of California.
- DECEMBER 14. A Travlogue on Continental Europe.
J. Emmet Hayden, Member San Francisco Board of Supervisors.
- DECEMBER 21. Construction Activities of the San Francisco Mountain Water Supply.
M. M. O'Shaughnessy, City Engineer, San Francisco.
- DECEMBER 28. A Tramp Around San Francisco in the Early Days.
Charles B. Turrill, San Francisco.

The accessions to the Museum and Library were numerous as will be fully set forth in the report of the Director of the Museum. Among them the donation by Dr. G. Dallas Hanna of 8464 specimens of Mollusks from Alaska, about 100,000 specimens of land and fresh water shells from the Mississippi Valley, and 568 bird eggs from the islands of Bering Sea, is worthy of special note.

In continuation of the Fourth Series of the Proceedings, the Academy has published during 1919 the following papers:

Vol. II, Part II, No. 13, pp. 189-258

FIELD NOTES ON THE LAND BIRDS OF THE GALAPAGOS ISLANDS AND OF
COCOS ISLAND, COSTA RICA,
by Edward Winslow Gifford.

- Vol. II, Part II, No. 14, pp. 259-297
THE ANTS OF THE GALAPAGOS ISLANDS,
by William Morton Wheeler.
- Vol. II, Part II, No. 15, pp. 299-308
THE ANTS OF COCOS ISLAND,
by William Morton Wheeler.
- Vol. II, Part II, No. 16, pp. 309-310
A NEW SPECIES OF THE HYMENOPTEROUS GENUS *SCLERODERMA* FROM THE
GALAPAGOS ISLANDS,
by Charles T. Brues.
- Vol. VIII, No. 8, pp. 309-316
REPORT OF THE PRESIDENT OF THE ACADEMY FOR THE YEAR 1918,
by C. E. Grunsky.
- Vol. VIII, No. 9, pp. 317-351
REPORT OF THE DIRECTOR OF THE MUSEUM FOR THE YEAR 1918,
by Barton Warren Evermann.
- Vol. IX, No. 1, pp. 1-36
NOTES ON WEST AMERICAN CHITONS—II,
by S. Stillman Berry.
- Vol. IX, No. 2, pp. 37-67
LIFE-ZONE INDICATORS IN CALIFORNIA,
by Harvey Monroe Hall and Joseph Grinnell.
- Vol. IX, No. 3, pp. 69-121
NOTES ON MAMMALS COLLECTED PRINCIPALLY IN WASHINGTON AND CALI-
FORNIA BETWEEN THE YEARS 1853 AND 1874 BY DR. JAMES GRAHAM
COOPER,
by Walter P. Taylor.
- Vol. IX, No. 4, pp. 123-173
CLIMATIC RELATIONS OF THE TERTIARY AND QUATERNARY FAUNAS OF
THE CALIFORNIA REGION,
by James Perrin Smith.
- Vol. IX, No. 5, pp. 175-196
CONTRIBUTION TO THE OPTICS OF THE MICROSCOPE,
by C. W. Woodworth.
- Vol. IX, No. 6, pp. 197-220
THE GOPHER-SNAKES OF WESTERN NORTH AMERICA,
by John Van Denburgh and Joseph R. Slevin.
- Vol. IX, No. 7, pp. 221-255
NEW OREGON DIPTERA,
by F. R. Cole and A. L. Lovett.
- Vol. IX, No. 8, pp. 257-270
KEY TO THE NORTH AMERICAN SPECIES OF THE DIPTEROUS GENUS *MED-
ETERUS*, WITH DESCRIPTION OF NEW SPECIES,
by Millard C. Van Duzee.
- Vol. IX, No. 9, pp. 271-272
DESCRIPTION OF A NEW FOSSIL FISH FROM JAPAN,
by David Starr Jordan.
- Vol. IX, No. 10, pp. 273-296
NOTES ON THE AVIFAUNA OF THE INNER COAST RANGE OF CALIFORNIA,
by Joseph Mailliard.
- Vol. IX, No. 11, pp. 297-312
NEW SPECIES OF FLIES (DIPTERA) FROM CALIFORNIA,
by J. R. Malloch.
- Vol. IX, No. 12, pp. 313-329
MECHANISM IN THE PRODUCTION OF THE THROAT-FAN IN THE FLORIDA
CHAMELEON,
by Charles E. Von Geldern.

In the matter of the bequest to the Academy of a tract of land of 247 acres near Santa Cruz by the late S. F. Thorn, which was referred to in the President's last annual report, it should be noted, that objection was made by some of the heirs to the probating of the will. The superior court allowed the probating of the will and on appeal this action was sustained by the Supreme Court. It appears, therefore, that the Academy will get this property and possibly something more, the Academy having been named residuary legatee in the will. The appraisers of the estate have found property which they valued at about \$29,200 including the land near Santa Cruz which is listed in the appraisal at \$6500.

Near the close of the year 1919 a distribution of the \$250,000 bequeathed by Ignatz Steinhart to the Academy for the erection of an aquarium in Golden Gate Park was ordered by the court, and Dr. Evermann and Civil Engineer Trygve Ronneberg, representing Architect Lewis P. Hobart, as soon thereafter as practical, left for the East to inspect the aquariums of Detroit, Washington, New York, Philadelphia, Boston, and Miami in order that the experiences at these might accrue to our benefit. Of the results of this trip Dr. Evermann will speak in his report as Director of the Museum. It is estimated that about a year and a half will be required to perfect the plans and erect the aquarium building.

It gives me particular pleasure to make a record at this time of the completion of the Olympic or Roosevelt Elk group, which was opened to public view on January 1, 1920. The excellence of the material which was made available for this group and its artistic setting, must, we feel sure, be a source of gratification and pleasure to the generous donor of this group, Mr. William C. Van Antwerp. The Academy, on behalf of the public for whose benefit such installations are made, desires to thank Mr. Van Antwerp for having made this habitat group possible. The grouping and mounting of the animals by Mr. Paul J. Fair conform to the standards already set by the Academy and are receiving much favorable comment; so, too, the high quality of the work of Capt. Charles B. Hudson, who painted the background.

The last of the spaces reserved for seals was filled during the year by the completion of a Fur-Seal group showing a rookery

on one of the Pribilof Islands. Here, too, Mr. Fair and Captain Hudson cooperated in the work of the installation. The available material was not entirely satisfactory in quantity or quality. More fur-seal specimens have recently been received, thanks to the courtesy of the U. S. Government, and a rearrangement and amplification of the foreground may be expected in the near future.

The last alcove in the Mammal Hall is to show, as nearly as may be, what the California grizzly bear looked like. The Academy has already been intrusted with a fund of \$5000 for the installation of such a bear group. The donor is Mr. Ogden Mills to whom also we express our sincere appreciation of his generosity and our gratification in his approval of our efforts to interest and instruct the public in natural science. It will, of course, be impossible to secure the necessary specimens for this group in California, the real California grizzly being extinct; but the nearest related species will be secured and it is expected that within the current year this group, too, may be opened to view.

For one of the small habitat groups, funds to the amount of \$103.00 were provided by Mr. S. Levi, a long-time member of the Academy. His example is worthy of emulation. There are still quite a number of small mammal and bird groups to be installed. There is opportunity also for some one to provide means for the preparation of the portable habitat groups which would prove exceptionally valuable for use in schools. And, while I am speaking of the needs of the Academy, may I not again call attention to the need of an addition to the museum building? There should be another unit equal to, or larger than, the present one at once made available, but this can only be done with the help of one or more public spirited citizens. And, if the plans for a close connection of the Steinhart aquarium with our museum building be carried out, then, too, further provision should be made for suitable architectural ornamentation of the main entrance to the resulting central court. I allude to these matters in order that the willingness of the Academy to enlarge its service to any extent for which means are provided may be generally understood.

In the President's last annual report it was stated that ownership of the John W. Mailliard and Joseph Mailliard collection

of eggs and bird skins was to be transferred by them to the Academy. This is now an accomplished fact and the collection has been made the property of the Academy. I repeat the Academy's thanks for this exceptionally valuable addition to its research material. The attractions of the Academy and the opportunity which it affords for study have proved so alluring to Mr. Joseph Mailliard that it has been possible to induce him to take the honorary curatorship of the Academy's department of Ornithology.

Dr. Roy E. Dickerson has been compelled by important demands on his time to sever his active connection with the department of Invertebrate Paleontology, but has been retained as honorary curator and Dr. G. Dallas Hanna was made curator and has been active in that capacity during the last months of the year.

The activities of the several departments in which the scientific work of the Academy received attention, are fully set forth in the report of the Director of the Museum, Dr. Barton Warren Evermann, and in the reports of the curators. It will be noted from these reports that much valuable work has been done and that the studies afield have extended in some cases beyond the limits of the state.

May I not suggest in closing, that the members of the Academy have a right to feel that this institution is their institution which they control through their officers and that a proper sense of proprietorship should prompt an endeavor, as opportunity offers, to enlist further financial support. The Academy should be in position to assemble and house the wealth of material afforded by nature in and about the shores of the Pacific Ocean which is worthy of collection in such a museum, as has already been well started but which remains capable of great expansion.

Again I must thank the staff and employees of the Academy for another year of faithful service.

XV

REPORT OF THE DIRECTOR OF THE MUSEUM FOR THE YEAR 1919

BY

BARTON WARREN EVERMANN
Director of the Museum

The annual report of the Director for the year 1918 was presented to the Academy at the annual meeting of February 19, 1919. At that time there had been completed 14 large, 4 intermediate and 8 small groups. Since then the following have been completed: Large groups, Alaska Fur-Seal and Roosevelt Elk; small groups, Cottontail and Water Ouzel.

Alaska Fur-Seal Group.—This group shows a typical harem and breeding rookery of the Alaska Fur-Seal. The particular rookery shown is that known as the North Rookery on St. George Island, Pribilof Group, in Bering Sea, Alaska. The animals constituting the harem—one bull, six cows, and six pups—were supplied by the United States Bureau of Fisheries at a nominal cost.

The number of cows and pups shown in the group is not as great as is necessary to make the exhibit the most typical of the average harem. Arrangements were therefore made by means of which there were secured from the Pribilof Islands 19 additional specimens. These are now being prepared for installation by Mr. William Heim. When they have been installed the group will contain one bull, ten cows, and fifteen pups.

In the preparation of this group the taxidermists and artist were materially assisted by Dr. G. Dallas Hanna under whose immediate supervision the specimens were collected, and by Dr. Harold Heath who visited the Seal Islands in 1918. Dr. Hanna supplied measurements for each of the specimens taken that were needed by the taxidermists. He also took numerous photographs that were very useful to the taxidermists and the artist. Dr. Heath supplied descriptive notes, photographs and colored sketches of the North Rookery which were of very

great help to the taxidermists and the artist. The assistance rendered by the Bureau of Fisheries and by Doctors Heath and Hanna is greatly appreciated by the Academy.

The Fur-Seal Group was prepared by Mr. Paul J. Fair, assisted by Mr. Arthur L. Reed. The background was painted by Charles Bradford Hudson. An inspection of this group shows that both taxidermists and artist did their work well. The group is very realistic and gives one a glimpse into the wonderful life-history of this really wonderful animal.

Roosevelt Elk Group.—This group occupies the first case on the right of the main entrance to the California mammal hall. It consists of one very large bull, one spike, two cows, and one calf. The animals were secured on the Hoh River in the Olympic Mountains, Washington, by Mr. C. J. Albrecht, director of vertebrate exhibits in the Museum of the University of Washington, Seattle.

The scene is a beautiful one. It shows the animals in the fall of the year on a grassy slope at the edge of a typical redwood forest such as one may see in northwestern California. The animals are on the grassy slope in the foreground; the old bull is bugling to a rival bull somewhere in the distance. In the background to the right is a dense redwood forest through which the sunlight shows very beautifully, while to the left several more or less barren mountain ranges are shown, increasingly higher in the distance. Altogether, the picture is an exceedingly beautiful one and the group is regarded as one of the most impressive and instructive that has been completed.

The Roosevelt Elk inhabits the dense coniferous forests of the humid Pacific coast from near the northern end of Vancouver Island southward through the coast ranges of Washington and Oregon to northwestern California. Its present center of abundance is in the almost impenetrable forests of the Olympic Mountains west of Puget Sound. It formerly probably ranged along the California coast as far south as Marin County, and a few are still left in the northwest corner of the state. Apparently its range never extended eastward to connect with that of the Rocky Mountain Elk (the species which is still common in northwestern Wyoming), which is a fact of great importance to the student of geographic distribution.

This splendid animal is known variously as the Roosevelt Elk or Wapiti, Olympic Elk, or Humboldt Elk. It is the largest and most magnificent of all the elks. It differs from the common Canadian or Rocky Mountain Wapiti in several respects, the most important of which are its larger size, larger, broader and more massive skull, and much darker coloration.

The late Colonel Roosevelt, in his entertaining book, "THE WILDERNESS HUNTER," speaks of the Rocky Mountain Elk as "not only the most stately and beautiful of American game, but also the noblest of the stag kind throughout the world"; and adds: "Whoever kills him has killed the chief of his race, for he stands far above his brethren of Asia and Europe." But this was written before the elk of the Olympics had been described as a distinct species by Dr. C. Hart Merriam who very properly says that "these remarks must now be transferred from the common Wapiti to the Pacific coast animal." Dr. Merriam further says: "I deem it a privilege to name this splendid animal Roosevelt's Wapiti. It is fitting that the noblest deer of America should perpetuate the name of one who, in the midst of a busy public career, has found time to study our larger mammals in their native haunts and who has written the best accounts we have ever had of their habits and chase."

For this beautiful habitat group the Academy is indebted to Mr. William C. Van Antwerp who very generously gave to the academy the funds necessary to meet the cost.

The group was prepared by Paul J. Fair, assisted by Arthur L. Reed. The background was painted by Charles Bradford Hudson.

It was completed December 20, 1919, photographed on the 22d, and the plate-glass front was put in on the 23d. On December 30 a private view of the group was given to Mr. Van Antwerp and his friends and on New Year's day it was formally opened to the public.

The public-spirited generosity of Mr. Van Antwerp in thus so materially aiding the Academy in its scientific and educational work is greatly appreciated not only by the Trustees, Council and entire membership of the Academy, but equally so by the general public, many thousands of whom have already viewed this imposing group and been fascinated as well as instructed by its beauty and fidelity to nature.

I wish also to express to Mr. Fair and Mr. Reed the Academy's appreciation of the splendid results which they attained in the preparation of this group, and to Captain Hudson equal appreciation of the unusually artistic and beautiful background.

Audubon Cottontail Group.—This is one of the small panel groups completed in the past year. This interesting little rabbit was originally described from San Francisco by Professor Baird who named it for John James Audubon, the great American ornithologist. It occurs not only in the San Francisco Bay region but its range extends northward in the Sacramento Valley at least as far as Tehama County, and southward in the San Joaquin Valley to Merced County. In Golden Gate Park it is, next to the squirrels, the most familiar and attractive of the native mammals. It is found throughout the Park wherever suitable cover exists. One or more pairs may be seen almost any day, particularly early in the morning or late in the evening, feeding at the edge of the large patch of procumbent bushes of the Stink-bean (*Albizzia lophantha*) on the hillside on the east side of the walk just after passing through the first tunnel when entering the Park from Tenth Avenue. These little "bunnies" make their home under these bushes. From this safe retreat they come out to feed upon the grass nearby. As you pass by this place you can see that the little rabbits keep the grass pretty thoroughly eaten off for several feet about the bushes.

The plant shown in the group is the Thimbleberry, *Rubus parviflorus*.

This group was prepared by Mr. Paul J. Fair, assisted by Mr. Arthur L. Reed. The background was painted by Miss Olive E. Cutter.

Water Ouzel Group.—This is another of the small panel groups completed within the year. Of the many interesting birds which one may see in the mountains of California there is none more interesting or attractive than the Water Ouzel with its plump little body, slaty gray plumage, and very unusual habits. Wherever there is a stream of clear, turbulent, running water, there you may possibly find these curious little birds. You may see one standing on a rock jutting out from

the shore or on a boulder out in the stream where the water rushes and swirls in the wildest way, the spray giving the bird a veritable shower bath. But, as if this were not enough, the ouzel bows to you a few times then takes a "header" off the rock to the bottom of the stream where, clinging and scraping along by means of claws and bill, it searches for caddis-fly larvæ and other aquatic insects upon which it feeds. That this little bird can thus remain and move about under water is very surprising, indeed.

The nest of the Ouzel, a large globular structure composed almost entirely of moss which is kept alive and green by the spray, is usually placed in a cavity in the bank or on a rocky ledge where it is splashed by the water; sometimes it is placed even behind a waterfall. The nest shown in this group was about a foot above the water in a hole in a large rock in Pescadero Creek, San Mateo County, California. One of the birds is shown sitting on the rock, the other is seen in the entrance to the nest. Above the nest is shown an azalea shrub (*Azalea occidentalis*) in flower. The Water Ouzel is the only species in North America of the family to which it belongs. It is found from the Yukon south in the mountains to the Mexican border and from the Black Hills westward to the Pacific.

This group was prepared by Mr. Paul J. Fair. Miss Olive E. Cutter painted the background.

The Museum therefore has completed at this date 16 large groups (ten mammal and six bird), four intermediate (all mammals), and ten small panel groups (seven bird and three mammal).

Space is left for only one more large group and 25 small panel groups. It has been provisionally decided to install in the one remaining large case a group of Grizzly Bears. As the California Grizzly Bear which occupied such a prominent place in the early history of the State is now believed to be extinct, it is proposed to get one of the nearly related species, either from the Yellowstone Park or from the Stikine River, Alaska.

PERSONNEL

A few changes in the personnel of the Museum staff have taken place within the year.

On February 1, 1919, Mr. Joseph Mailliard was appointed honorary curator, department of Ornithology and Mammalogy, this position having been vacant for several years. April 1, Mr. Luther Little was appointed assistant curator, department of Ornithology and Mammalogy. Mr. Little resigned January 31, 1920, to go into business. During Mr. Little's connection of ten months with the Museum he rendered very efficient service and it is with real regret that we see him leave us.

Mr. William Heim was temporarily employed as taxidermist from February 1 to May 22. He was again employed in the same capacity October 1. On August 1 Mr. Paul J. Fair and Mr. Arthur L. Reed were taken off the roll as regular employees and began the preparation of the Roosevelt Elk group under contract, which they completed December 20. Miss Olive Cutter resigned July 31, as preparator. Dr. Roy E. Dickerson, having been employed by the Standard Oil Company to do field work in the Philippines, which precluded the possibility of his giving that attention to the department which was necessary, was appointed honorary curator of Invertebrate Paleontology April 1, and Dr. G. Dallas Hanna was appointed curator. Dr. Hanna, at the time of his appointment was on the Pribilof Islands as agent of the U. S. Bureau of Fisheries. He returned from the Seal Islands in October and entered on his duties with the Museum November 1.

Georges Vorbe and Merle Israelsky, temporary employees, department of Paleontology, were laid off, the former on April 25, the latter on June 8.

Miss Lula M. Burt was employed as osteological preparator from December 1, 1918, to April 30, 1919, and from July 30 to August 6, 1919.

Mrs. Marian L. Campbell has, since November 30, 1919, been giving one day a week to the department of Botany, and Mrs. Kate E. Phelps has been serving as assistant in that department since December 1.

The employees of the Academy at this date are the following: Dr. Barton Warren Evermann, Director and Executive Curator of the Museum, and Editor; W. W. Sargeant, Secretary to the Board of Trustees; Miss Susie Peers, Secretary to the Director; Joseph W. Hobson, Recording Secretary; Miss Alice Eastwood, curator, Department of Botany; Edward P. Van

Duzee, curator, Department of Entomology and assistant librarian; Dr. John Van Denburgh, curator, Department of Herpetology; Dr. Roy E. Dickerson, honorary curator, Department of Invertebrate Paleontology; Dr. G. Dallas Hanna, curator, Department of Invertebrate Paleontology; Dr. Walter K. Fisher, curator, Department of Invertebrate Zoology; Joseph Mailliard, honorary curator, Department of Ornithology and Mammalogy; Joseph R. Slevin, assistant curator, Department of Herpetology; Mrs. Marian L. Campbell, assistant, Department of Botany; Mrs. Kate E. Phelps, assistant, Department of Botany; Mrs. Helen Van Duzee, assistant, Department of Entomology and in the Library; Miss Mary E. McLellan, library assistant; William Heim, assistant, Department of Exhibits; Raymond Smith, general assistant; William C. Lewis, janitor; Fred Maag, assistant janitor and carpenter; George W. Edwards, assistant janitor; Frank W. Yale, night watchman; Mrs. Johanna E. Wilkens, janitress; Patrick J. O'Brien, day watch; William Burns, night watch.

ACCESSIONS TO THE MUSEUM AND LIBRARY

As in previous years, the accessions to the Museum and the Library have been numerous, as shown by the detailed list in the appendix to this report (pp. 389-396).

VISITORS TO THE MUSEUM

The Museum has been open to the public every day in the year, and there was a marked increase in the number of visitors over that for 1918. The attendance by months during the year 1919, was as follows:

January	17,241
February	17,586
March	27,397
April	25,994
May	28,369
June	32,248
July	48,028
August	43,730
September	34,007

October	30,463
November	25,246
December	21,246
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Total	351,497

That the public and private schools are finding the exhibits in the Museum interesting and helpful in their educational work is evidenced by the large number of schools that, with their teachers, visit the Museum each year. During 1919 there were schools from San Francisco, Berkeley, Oakland, Alameda, Piedmont, San Jose, and San Anselmo.

Whenever opportunity offered it has been the policy of the Director to accompany the schools through the Museum, explaining briefly the general features of installation and calling attention to the educational value of certain exhibits, and then taking the schools into the lecture hall and showing them stereopticon slides and moving pictures of the species of animals shown in one of the groups.

The visits by schools in the year have been as follows:

Number of schools represented.....	80
Number of classes or grades.....	214
Number of teachers in charge.....	215
Total number of pupils	7000

LECTURES

The practice of maintaining courses of free lectures on popular scientific subjects has been continued. These have been, as heretofore, in two series—first, those given at the regular stated meetings of the Academy in the hall of the Engineers' Club of San Francisco, 57 Post Street, on the third Wednesday evening of each month (changed September, 1919, to the first Wednesday of each month), and, second, those given at three o'clock each Sunday afternoon in the Auditorium of the Museum. These lectures have without exception been well attended, the audiences at the Sunday lectures usually equalling or exceeding the seating capacity of the hall.

A list of the lectures given in 1919 will be found in the President's report (pp. 359–361).

FIELD WORK OF THE MUSEUM STAFF

Within the year, the Museum carried on a number of field investigations, as follows:

Channel Islands.—A collecting party consisting of Dr. Van Denburgh, Mr. Slevin, Mr. Van Duzee and the Director spent a week (May 15-21) on the Channel Islands off the California coast, the particular islands visited being Anacapa, Santa Cruz, Santa Rosa, Prince, and San Miguel.

The party was able to visit these islands through the courtesy of the California Fish and Game Commission, and I wish to take this opportunity to express to the officials of that Commission, especially Mr. Carl Westerfeld, Executive Secretary; Mr. Norman B. Scofield, assistant in charge of commercial fisheries; and Captain H. B. Nidiver of the Commission's patrol boat "Albacore," the appreciation of the members of the party of the courtesies extended. Captain Nidiver did everything possible to make the trip a success. Our thanks are due also the Messrs. Arthur and Fred Caire of the Justinian Caire Company for permission to land on Santa Cruz Island, to Vail and Vickers for permission to land on Santa Rosa Island, and to Captain H. W. Rhodes, Inspector of the 18th Lighthouse District, to land on Anacapa and San Miguel islands.

The trip to these islands proved quite successful and considerable collections of natural history specimens were obtained, the most important in the following departments: Entomology, 1965 specimens; herpetology, 201 specimens; oölogy, 190; conchology, 100.

Riverside County.—Mr. Joseph R. Slevin spent May 21-31 in the vicinity of Mecca, Riverside County, making collections for the department of Herpetology. About 70 specimens were obtained.

Lower California.—An expedition was sent to the Cape region of Lower California to make collections for the departments of Herpetology and Invertebrate Zoology. The party, consisting of Mr. Joseph R. Slevin, and Mr. G. F. Ferris of Stanford University, left San Francisco June 14 and returned September 23. Owing to illness while in the field of both members of the party the expedition was not as successful as it

otherwise would have been. Nevertheless Mr. Slevin brought home a total of 1396 reptiles and amphibians, among which are represented several rare or little known species.

Olympic Mountains.—September 12 to 28 was spent by the Director of the Museum and the Curator of Herpetology in a trip to the Olympic Mountains west of Seattle. The primary objects of the trip were to secure, if possible, moving pictures of the Roosevelt Elk and to make collections of reptiles and amphibians. Though we had with us Mr. Will Hudson, an expert Pathé photographer, and Mr. C. J. Albrecht, an expert hunter who had secured for the Academy all the animals used in the Roosevelt Elk group and who was thoroughly familiar with the region, we were entirely unsuccessful in securing any elk pictures. We spent several days (September 18-24) on the Hoh River some 70 miles west of Port Angeles. This is in the region where Mr. Albrecht obtained the specimens for our group and where the elk might be expected at that season, but we saw only six bulls all told. There had been no snow in the mountains to drive the herds down into the river valley. Another effort will be made next fall.

In herpetology the trip was much more successful, 239 valuable specimens having been obtained.

Huntington Lake.—Mr. E. P. Van Duzee spent the month of July (July 3 to 31) at Huntington Lake in the Sierras east of Fresno, in the interest of his department, when he added about 5000 specimens to the Academy's entomological collections. Besides this field trip Mr. Van Duzee made several other short collecting trips, all fully set forth in his report.

Yosemite National Park.—Mr. William Heim spent the time from October 6 to 28, collecting birds and mammals in the Yosemite region. He obtained fifty specimens.

Napa, Lake, Mendocino, and Colusa counties.—Most of the months of April to June and September and October were spent by Mr. Joseph Mailliard and Mr. Luther Little in these counties studying and collecting the birds and mammals of that region. The total number of specimens secured was: mammals, 190; birds, 753; birds' nests and eggs, 50; reptiles and amphibians, 13.

Besides the field work in these counties numerous short collecting trips in the interest of the department of Ornithology and Mammalogy were made by the curator, assistant curator, Mr. Heim, and the Director to Marin, Santa Clara, Alameda, Santa Cruz, and Monterey counties.

Arizona.—Miss Alice Eastwood spent the period from March 15 to May 30, in Arizona making collections for the Arnold Arboretum and the Academy of Sciences, and in San Diego County from June 23 to July 6, in the same interests.

The details of these various collecting trips are set forth fully in the reports of the respective curators.

PASADENA MEETING OF THE PACIFIC DIVISION OF THE
AMERICAN ASSOCIATION FOR THE ADVANCEMENT
OF SCIENCE

The meeting was held June 18 to 23, at the Throop College of Technology. The Academy was represented by the Director of the Museum, Secretary W. W. Sargeant, and Miss Alice Eastwood, curator of Botany. The Director was present as vice-president and chairman of the executive committee of the Division, and Mr. Sargeant as secretary of the Division.

The Academy was represented on the program by the following members:

Mr. W. E. Allen of the Scripps Institution;
Dr. W. W. Campbell, Director of the Lick Observatory;
Prof. John N. Cobb, Dean of the Fisheries College of the University of Washington;
Miss Alice Eastwood, Curator of Botany;
Dr. Charles H. Edmondson, Professor of Zoology, University of Oregon;
Dr. Barton Warren Evermann, Director of the Museum;
Dr. David Starr Jordan, Chancellor Emeritus, Stanford University;
Dr. George D. Louderback, Professor of Geology, University of California;
Dr. William E. Ritter, Director of the Scripps Institution for Biological Research;
Mr. N. B. Scofield of the California Fish and Game Commission;
Dr. Chester Stock of the Standard Oil Company;
Dr. F. B. Sumner of the Scripps Institution for Biological Research;
Mr. E. P. Van Duzee, Curator of Entomology;
Dr. Charles E. von Geldern of Sacramento;
Dr. Bailey Willis, Professor of Geology, Stanford University;
Dr. B. L. Clark, University of California;
Dr. S. D. Townley of Stanford University.

USE OF THE ACADEMY'S COLLECTIONS AND LIBRARY BY
INVESTIGATORS AND STUDENTS

Students and investigators continue to make use of the Academy's collections, library, and facilities for study and research. A few of those who have done so in the past year may be mentioned. Mr. L. M. Loomis has continued to make use of the Academy's collection of sea birds. The bird, and bird egg and mammal collections have been used also by Harry S. Swarth, Joseph Grinnell, Harold E. Hanson, John Van Denburgh, and several teachers in public and private schools. In Entomology the entomologists not only of the San Francisco Bay region but of other parts of the Pacific Coast have continued to make use of our collections. The number is too formidable to name here individually; the names are all given in the department's records. The same is true of the departments of Botany and Paleontology.

Much time of the Curators and of the Director has been given to supplying data and information to correspondents, specialists and students who, in increasing numbers, are turning to the Academy for information and assistance in matters in which they are interested.

DEPARTMENT ACTIVITIES

The curators and assistants have been active and efficient in the work of their respective departments. They have each not only labored unceasingly to increase the collections but they have been untiring in their efforts to see that the collections are properly cared for. To prevent deterioration of museum specimens requires unceasing vigilance and attention on the part of the curators; only in this way can the loss of valuable specimens be avoided.

The condition and activities of the various departments are fully set forth by the curators in their departmental reports. The Director wishes to take this opportunity to express his appreciation of the splendid spirit which each and every member of the Museum staff has shown in his work. Every member has shown that he is deeply interested not only in his particular line of work but also in the Museum, and all have cooperated whole-heartedly and effectively in making the Museum of real scientific and educational value.

DEPARTMENTAL REPORTS

DEPARTMENT OF BOTANY

By Alice Eastwood, *Curator*

The herbarium of the California Academy of Sciences now numbers 59,589 specimens, mounted, classified and systematically arranged. Approximately 17,000 species are represented.

Accessions have been received from various sources: Forty-eight different individuals have sent specimens, most of them for identification. The largest accession was the herbarium of the late Dr. E. K. Abbott, of Salinas, which was presented to the Academy in 1918, but not incorporated in its herbarium until 1919. In addition to a fairly complete collection from the vicinity of Monterey and Salinas, it included collections from Michigan and Illinois, and a most interesting lot of European specimens collected many years ago in the region of northern France devastated by the late war.

Exchanges have been received from the U. S. National Museum, from Ira W. Clokey, of Denver, Colorado, and the Rev. John Davis, of Hannibal, Missouri.

Duplicates have been sent to the following from which we shall obtain specimens in return when they distribute duplicates:

The Arnold Arboretum.....	786
Gray Herbarium	1454
Missouri Botanical Garden.....	489
New York Botanical Garden	940
U. S. National Herbarium.....	2164
Ira W. Clokey	864

The middle of March the curator started on a collecting trip in Arizona and New Mexico. This was financed by the Arnold Arboretum of Harvard University, and at the request of Professor C. S. Sargent, Director of the Arnold Arboretum and Professor of Forestry, who wished to have a systematic collection made of the cottonwoods of the places visited, particularly, the country around Silver City, New Mexico. Collections were accordingly made at the following places: Indio and Needles, California; Yuma, Casa Grande, Sacaton, Tucson, Bowie, Globe, Roosevelt Dam and Fish Creek (on the Apache Trail), Ash Fork, Prescott, and Topock, Arizona; and Silver City, Fort Bayard, Santa Rita, Whitewater Junction, Tyrone, and Lordsburg, New Mexico. Ten days were spent at Tucson, and five weeks at Silver City.

At most other places only a day, or perhaps a few hours between trains, was spent. Several days were devoted to Los Angeles, chiefly at a camp in San Gabriel Canyon. About the middle of June a trip was made to the Cleveland Forest Reserve, San Diego County, in search of a rare *Celtis* for Professor Sargent, at which place a large collection was made. Altogether there were added to the herbarium, 1,723 specimens, but several

thousand specimens were collected, duplicates of most of them being sent direct to Professor Sargent.

During the year, the Academy purchased a label printing machine for the purpose of labelling the trees and shrubs of the park with their scientific names. The Academy bore the initial expense but hereafter the Park authorities pay for the materials and furnish the labor. Mr. Eric Walther, one of the gardeners, has been assigned to this work because of his knowledge and enthusiasm, but so far, has been able to give but a month of his time to the work on account of the press of other duties. However, about 1,200 labels have been printed and attached to the trees and shrubs, chiefly in the parts of the park most frequented. This represents about 500 species and varieties and 200 genera.

The exhibition of flowers in bloom out of doors, both cultivated and wild, has been continued in the vestibule of the Museum, throughout the year. Mrs. Johanna Wilkens has been most faithful in keeping all in cleanliness and order, and to her is due great credit for the success of the exhibition. Mrs. Marian L. Campbell and Mrs. E. C. Sutcliffe, as well as other members of the Botanical Club, have been assiduous in keeping up the supply of wild flowers, and Eric Walther has made collections from the Park.

The usual activities of the Botanical Department have continued during the year. The Botanical Club has held frequent meetings and excursions and the evening class of the gardeners has met weekly when the curator has been in San Francisco. In addition to this, lectures have been given to various clubs and popular articles have been contributed to magazines.

DEPARTMENT OF ENTOMOLOGY

By E. P. Van Duzee, *Curator*

The work in the Department of Entomology during 1919, as in the previous year, was largely confined to the acquisition, determination, and arrangement of North American insects, especially those from California. Additions to the department during the year number 17,891 specimens, of which 12,504 were taken by the curator, 1,020 were added through the efforts of Mr. J. R. Slevin while in Lower California last July, 1,096 through purchase from Mr. R. H. Beck, and 3,271 were presented by friends of the Academy. This donated material came in small lots but it added many interesting species to the Academy collection. From Dr. F. E. Blaisdell the Academy received 665 specimens; from Dr. F. C. Clark, 546 specimens; from Mr. C. L. Fox, 448, including a remarkably fine series of Diptera or two-winged flies from Mt. Rainier, Washington; from Mrs. E. P. Van Duzee, 260 specimens; from Mr. J. O. Martin, 252 specimens, largely named species to fill vacancies in the Academy series; from Dr. E. C. Van Dyke, 239 specimens; from Mr. E. A. Dodge of Santa Cruz, 189 specimens, including some interesting Catocalæ and a special collection of Tabanidæ, or "horse-flies," made by his brother, the late G. M. Dodge, in the Mississippi Valley; from Ralph Hopping, 182 specimens; from Mr. J. Preston Clark of Boston, 148 specimens taken by Mr. J. A. Kusche

at Mazatlan, Mexico; and smaller series from Major Chapman Grant of Oklahoma City, Mr. J. C. Huguenin of San Francisco, and from Dr. Evermann, Miss Eastwood, Mr. Mailliard, and Mr. Little of the Academy staff, and others. These figures do not include many donations of most valuable material which it has been impossible for the curator to mount and prepare for incorporation in the collections of the Academy. These will be acknowledged later when help for mounting them is available.

The field trips of the curator with the material obtained are as follows: March, three days at Carmel with Mrs. Van Duzee, as guest of Mr. L. S. Slevin, 956 specimens; April, nine days by automobile from Bradley to San Luis Obispo and return, with Mr. L. S. Slevin, 1,628 specimens; May, six days on the Channel Islands of Anacapa, Santa Cruz, San Miguel, and Santa Rosa, with members of the Academy staff, as guests of the California State Fish and Game Commission, 1,965 specimens; June, three days with Mrs. Van Duzee at Santa Cruz as guests of Mr. and Mrs. E. A. Dodge, 1,002 specimens; July, one month with Mrs. Van Duzee and Dr. and Mrs. Blaisdell at Huntington Lake, Fresno County, 4,810 specimens; August, three days at Stockton, 630 specimens; and various short trips about the bay region on Sundays and evenings, 1,513 specimens.

During the year considerable progress was made in the classification and arrangement of the collections. Most important is, perhaps, the work accomplished on the Diptera or two-winged flies. Material in that order has been determined by Mr. J. R. Malloch of Urbana, Illinois, Prof. J. S. Hine of Columbus, Ohio, Mr. E. T. Cresson, Jr., of Philadelphia, Mr. C. P. Alexander of Urbana, Illinois, Mr. C. W. Johnson of Boston, Mr. M. C. Van Duzee of Buffalo, and Mr. A. L. Lovett of Corvallis, Oregon, but of most value has been the help received from Mr. F. R. Cole of Stanford University, who has worked over our entire collection, determining a large number of species that had not been studied by other specialists and assorting and placing in the arranged series the numerous species added during the year. Fifteen families in this order have now been classified and arranged. In the Lepidoptera Mr. W. S. Wright of San Diego has completed the determination of our material in family Geometridæ and the curator has arranged these and has also worked over and arranged the material in the Noctuidæ, Ægeridæ and Hepialidæ, determining many species and verifying others where their determination seemed doubtful. In the Coleoptera, or beetles, Dr. F. E. Blaisdell has again given much time and effort to the determination of our material and the increase of our collection. Additional assistance has been received from Dr. E. C. Van Dyke in the Elateridæ and Buprestidæ and from Mr. Ralph Hopping in the Cerambycidæ, and the latter family and the Tenebrionidæ have been re-arranged in new boxes after the forthcoming Leng Catalogue, proof sheets for this purpose having very kindly been loaned to the Academy by Mr. Leng. In the Orthoptera, or grasshoppers and their relatives, almost the entire series has been sent to Mr. Morgan Hebard of Philadelphia for study and another year should see that order in excellent shape.

One important piece of work accomplished during the year has been the cataloguing and arranging in a new metal cabinet of the insect types in possession of the Academy. Six hundred and seventy-eight types, representing 461 species, have been entered in our register of type specimens, most of which are either holotypes or allotypes, in a few cases only were paratypes included where types were not available. The work of entering these records on the type register as well as the writing of the species labels for most of the insects arranged during the year and the preparation of a large number of record cards, has been done for the department by Mr. J. R. Carlson. The accumulation and preservation of the types of our west coast insects is a duty the Academy owes to future students of insects here in the west and it is earnestly hoped that those describing new species of insects from the west coast will see that the holotypes of such species are deposited in the collection of this Academy where they will be as safe from destruction as it is possible to make them. In addition to the types of all species described from material in the Academy collection quite a number have been received from friends of the Academy. Mr. W. M. Giffard of Honolulu has given the Academy the types of two rare beetles from the Rivers collection (*Amblychila baroni* and *Necydalis barbaræ*), and those of all the Hemiptera described from material taken by him in California, 46 in number, and the paratypes of the Hymenoptera described by Mr. Rohwer from his material taken in the Sierras in 1916; Messrs. Lovett and Cole have donated the types of 42 species of Oregon Diptera published by them in 1919; Mr. M. C. Van Duzee has donated the types of six species of Diptera described by him in his paper on the genus *Medeterus*; Mr. J. R. Malloch, the types of two species of Diptera described by him; Mr. E. O. Essig, the types or cotypes of 21 species of plant-lice published by him in 1918; and Mr. E. A. Dodge, the type of a new butterfly (*Pamphila pawnee*) described by his brother, G. M. Dodge, in 1874. Types of 15 species have been added during the year from the description of Academy material.

Excepting the month of July, the Department of Entomology has kept "open house" every Saturday afternoon for those who wished to use or inspect the collections or to meet with others interested in this line of study. These gatherings have been well attended most of the days and perhaps have served a useful purpose in bringing together our local students and such visiting entomologists as were able to attend. During the year the Academy has lost through removal elsewhere three of its most regular attendants and co-workers, Mr. and Mrs. L. R. Reynolds, who have removed to Mexico City, and Mr. Ralph Hopping to Vernon, B. C.

The routine work of mounting and labeling the numerous specimens added during the year has taken up so much of the time of the curator that very little systematic work has been accomplished. A small report on the Hemiptera of the Canadian Arctic Expedition, prepared last year, has been published by the Dominion Government at Ottawa and another paper describing 28 new species of Hemiptera is now in the hands of the printer. The same cause has operated to hinder the classification and arrangement of the Academy's collection in all orders.

The most important work ahead of this department for the coming year is, as it was last year, the building up of a representative collection of west coast insects, a collection that for our west coast fauna will be the equivalent of the great collections in the museums of the east. In the Hemiptera and Diptera at least we already have material that cannot be ignored by students undertaking monographic work in these orders. Still, this is but a beginning and our energies for a few years should be largely concentrated upon the local fauna. The greatest needs of this department during the coming year is for more cases for the arrangement of our material and for more help for the curator in the mounting and labeling of specimens. There are large accumulations of valuable material on hand to be mounted or immediately available when there is suitable help for preparing the specimens. The call for more assistance and more cases will continue for a few years until the foundation for our collection of local insects has been laid by the acquisition and arrangement of a good series of our common and more characteristic species.

LIBRARIAN'S REPORT

By E. P. Van Duzee, *Assistant Librarian*

The year 1919 has seen satisfactory advance along all lines of work in the library. Additions to the library during the year number 444 complete volumes and a considerable number of pamphlets and society publications not yet completing volumes. Of the additional volumes noted 39 were received by gift and 200 through exchange with other institutions. The total number of volumes accessioned on December 31, 1919, was 11,880 of which 4,750 were entered during the past year. The collation and classification of the miscellaneous government and institutional publications is rapidly nearing completion and a good proportion of these have been fully catalogued and the cards incorporated in the library catalogue. About 125 boxes that had not been opened since the library was moved to the new building were unpacked and their contents assorted and distributed. Additions from this and other sources necessitated the rearrangement of the entire series of periodicals and society publications in the English language so they now occupy five of the six cases in the up-stairs reading room.

As during the previous year, Miss McLellan and Mrs. Van Duzee have each devoted a portion of their time to the care of the library, Miss McLellan taking charge of the reading room, caring for the current accessions and making all entries in the accessions register, while Mrs. Van Duzee has done the classifying and cataloguing of the books. Both have done careful and efficient work and are rapidly getting the library into excellent condition. Use of the library by the public and by members outside of the regular staff of the institution has shown a satisfactory increase and the books purchased have included such as will prove valuable to those readers, as well as technical works for the use of the curators. A considerable number of books have been ordered from European sources

but not yet received, and two new book cases will soon be installed in the lower library room which should add much to the efficiency of the library equipment.

DEPARTMENT OF HERPETOLOGY

By John Van Denburgh, *Curator*

The Department of Herpetology during the year 1919 progressed satisfactorily, and the work accomplished compares favorably with that of previous years.

At the beginning of the year 1919 the Academy's collection of reptiles and amphibians numbered 37,372 specimens. There have been added during the year 2,666 specimens, so that the collection has grown to more than 40,000 specimens.

The number of specimens added during each of the past six years has been about as follows:

1914	800 specimens
1915	800 "
1916	1500 "
1917	1600 "
1918	1724 "
1919	2666 "

Gifts of specimens during the year have been received as follows:

From Edward J. Brown	94 specimens
" J. R. Slevin	4 "
" Ralph Borden	4 "
" Dr. J. Van Denburgh.....	1 specimen
" H. H. Hunt	1 "
" Miss Susie Peers	1 "
" W. C. Lewis	1 "
" Paul Wallace	2 specimens
" Mayor James Rolph, Jr.	1 specimen
" Ryan Fruit Co.	1 "
" August Kusche	3 specimens
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113 specimens	

Three collecting trips were undertaken to:

1. Mecca, Riverside County, California, Anacapa, Santa Cruz and San Miguel islands;
2. Cape Region of Lower California;
3. Northwestern Washington.

Aside from the collection made on the islands, specimens have been secured from 12 counties of California, as follows:

Contra Costa	1 specimen
Lake	5 specimens
Los Angeles	86 "
Marin	2 "
Mendocino	5 "
Napa	3 "
Orange	10 "
Riverside	70 "
San Francisco	2 "
San Joaquin	1 specimen
San Mateo	1 "
Santa Cruz	4 specimens

Specimens from other localities are:

Florida	3 specimens
Kentucky	2 "
North Carolina	5 "
Texas	3 "
Virginia	2 "
Washington	239 "
Brazil	609 "
Dutch East Indies	4 "
Gautemala	1 specimen
Hawaiian Islands	3 "
Lower California.....	1296 "
Nicaragua	4 "
Pacific Ocean between Yokohama and Honolulu...	1 specimen

The classification and arrangement of the collection was continued during the early part of the year.

Considerable research work has been accomplished during the year and a detailed study of the gopher-snakes of the states west of the Rocky Mountains has been published.¹

During the year the Assistant Curator, Mr. J. R. Slevin, carried on explorations in the Cape Region of Lower California, where he spent the months of July, August, and part of September, and secured large collections.

The growth of the collections is retarded by the limited funds available for field work. These funds should be increased very materially, and a sum should be available for the purchase of collections when offered for sale by individual collectors or institutions.

¹ Proc. Calif. Acad. Sci., 4th Ser., vol. 9, no. 6, pp. 197-220, pls. 11-13.

DEPARTMENT OF ORNITHOLOGY AND MAMMALOLOGY

By Joseph Mailliard, *Curator*

Work in the Department of Ornithology, which had been in abeyance for some time, was actively resumed at the beginning of February, 1919, and has been carried on without interruption since that date.

A matter of first importance was the compilation of a proper card index of the research collection of birds which consisted, at the beginning of this year, of something over 19,000 specimens. The preparatory work for this has been accomplished, and the typewriting of the cards is now nearly completed.

All the specimens in the cases were examined and cleaned with an air blast, and periodical inspections have been maintained.

Field work has been carried on, as far as the fund appropriated allowed, by the curator and his assistant, Mr. Luther Little. The principal event in this line has been the exploration of the Inner Coast Range of California in parts of Napa, Lake, Mendocino, and Colusa counties, which was carried on during the months of April, May, and June and in September and October. In this work the department was greatly assisted by Mr. John W. Mailliard, who placed his services and the use of his car at our disposal on several occasions, thus enabling us to examine districts and aiding us in collecting material which would otherwise have been beyond our reach. Interesting additions to our knowledge of the avifauna of California have been the reward of this field work and material of much assistance toward the solutions of some puzzling problems in distribution has been obtained. The results of the spring field work were published in the *Proceedings of the Academy*.²

Acting upon a request for cooperation from the Bureau of Biological Survey, this department has preserved and forwarded to that bureau, for content examination, the stomachs of a considerable proportion of the birds taken as specimens during the explorations and field work, and will continue to assist in this manner as far as time and opportunity permit.

Among the educational exhibits of special interest now being prepared by the department is one of the birds of Golden Gate Park. The purpose is to show a pair of properly mounted specimens of each of the species of birds known to occur in the Park. The species that are permanent residents will be shown in one case, and those present only as winter, spring or fall visitants or migrants in other cases. Then in the final case will be represented the current species. This last group will be a constantly changing one, as it will be kept up to date by removing the species that leave and adding those which arrive in the Park from day to day. It is believed these exhibits will prove of real value to the public schools in their nature study work. These specimens are being prepared by Mr. Wm. Heim. Specimens have been contributed to this exhibit by various persons, among whom may be mentioned Messrs. J. V. Donovan, Charles Budd, and Sergt. P. H. McGee of Golden Gate Park, Prof. J. O. Snyder of Stanford University, and the California Fish and Game Commission.

² Vol. IX, No. 10, 4th Ser., pp. 273-296, November 25, 1919.

Accessions to the department during the year have been numerous, as shown in detail in the general list of accessions. The total number of specimens of birds in the Academy collection entered on the register at the end of the year 1919 amounts to 31,528.

As part of the work of this department should be included the placing in dust-proof, glass-topped containers of the Academy's oölogical collection, thus making the eggs safe from damage that might result from ordinary causes. This collection is only awaiting additional cases for its definite systematic arrangement. A number of nests accompany the sets of eggs and many of these have been mounted in an attractive and useful manner.

Press of other work having prevented the cataloguing of the eggs in this branch of the department, the actual number of specimens can only be approximated.

The principal gift during the year was that of the oölogical collection of J. and J. W. Mailliard, containing 12,431 eggs in 3,270 sets, representing 612 species. The Academy's oölogical collection now contains about 1,700 sets, or about 17,430 eggs.

Some work was done in the mammalogical section of the department. Collecting of rodents and other small mammals was carried on in connection with the field work in ornithology, and some 225 specimens of mammals were thus obtained from localities not heretofore represented in the Academy collection, such as parts of Napa, Sonoma, Lake, Mendocino, and Colusa counties. Luther Little and Wm. Heim also made specimens of a number of *Thomomys* and *Scapanus* kindly brought to us by the park trappers, which, with some other gifts, make the additions to the collection for the year about 285 specimens.

The additions to the collections are all recorded in the list of accessions (pp. 389-396).

Miss Lula Burt made good progress with the cleaning of skulls, which work was later taken up by Mr. Little, so that this branch of the department work has been brought practically up to date.

No opportunity has been available for classifying or arranging this collection, and no card catalogue can be compiled until this is done. In the meantime it is being well cared for, and field work will be continued in conjunction, as far as possible, with that of the Department of Ornithology.

DEPARTMENT OF INVERTEBRATE PALEONTOLOGY

By G. Dallas Hanna, *Curator*

The former curator of the Department, Dr. Roy E. Dickerson, continued on leave of absence during the early part of the year. Geological field work in Oregon, Washington, and California for one of the large oil companies, however, presented an opportunity to gather a considerable amount of material for the collection of the Academy which illustrates some little known horizons of these states. Some field work was done in the Petaluma Quadrangle and an important collection of freshwater shells from the Miocene Lake Petaluma was secured and partially worked up. In April Dr. Dickerson was appointed honorary curator of the Department and in

May departed for extensive field work in the Philippine Islands for the Standard Oil Company.

The present curator was appointed in April, 1919, but did not assume active duty until the first of November. This was due to engagement in work on the Pribilof Islands, Alaska, for the United States Bureau of Fisheries. When not otherwise engaged the time was spent in gathering specimens of various kinds for the Academy. In this way large collections of shells and bird eggs were secured as well as material to complete the fur-seal group, and miscellaneous plants, birds, mammals, and invertebrates.

After his arrival at the Academy his attention has been given chiefly to the distribution of the large numbers of recent mollusks which have accumulated in the collection. These are an indispensable aid to the study of the paleontology of the state and it seems desirable to have them placed in the most accessible manner for comparison and consultation. Considerable study has been given to the fossil land and freshwater mollusks in the collection and those received from correspondents. This phase of the paleontology of the Pacific Coast has not received a great deal of attention in the past. The former existence of many large lakes is known however. Considerable collections of shells from the old beds have accumulated and are available for study in the Academy and neighboring institutions whose cooperation has been assured.

The study of the fossil land and freshwater shells has necessitated a review of all of the literature on the recent forms, a task of no little magnitude in itself. Over two thousand references have already been indexed. Fortunately the collections are extensive and the various accessible libraries are well represented with desirable publications. The work, it is hoped, will enable the various faunal areas on the Pacific side of the Rocky Mountains to be plotted as they exist today as well as the age and other features of the numerous fossil deposits. It is also expected that this work will enable the curator to assemble the complete synonymy of the land and freshwater species of the Rocky Mountain region. Such a work has not been attempted for about forty years and the result is, there is great uncertainty regarding many of the species.

Students of paleontology continue to find the collection of the Academy of value in their researches. Professor Bruce L. Clark of the University of California has consulted the material here in his study of the Oligocene of California, Oregon, Washington, and Vancouver Island. A considerable number of specimens has been loaned to him and in return he has favored the curator with the land and freshwater mollusks in his charge. One of his graduate students has been assigned as thesis work the preparation of a monograph on the recent and fossil mollusks of the family Turritellidæ of the Pacific Coast. Miss Richardson, who is making the study, has found in the Academy's collection, numerous species which otherwise would not have been accessible for her work. Such monographs are greatly desired by all active geologists and paleontologists and it is to be hoped that this group which is so poorly understood will at last be clearly discussed.

Dr. Earl S. Packard of the University of Oregon (temporarily on duty with the Standard Oil Company) has done some field work for the Academy in the Cretaceous deposits of northern California and in Oregon.

The collection which he has assembled and is studying will form a valuable addition to the Academy's Cretaceous series.

The large collection of recent shells gathered by Henry Hemphill and which now forms a part of the Department of Invertebrate Paleontology has been consulted for study by Mrs. I. S. Oldroyd of Stanford University.

Several valuable lots of recent shells have been received during the year. The land shells obtained from the Channel Islands of California by Messrs. Evermann, Van Duzee, and Slevin include some species which have rarely been collected. These islands are the type locality for several species and owing to their isolation have rarely been visited by naturalists. Mr. Slevin of the Department of Herpetology also secured a considerable number of land shells during his explorations in Lower California in 1919. A collection of over 8,000 mollusks was secured by the curator by dredging in Bering Sea and collecting on the Alaska and British Columbia islands. Numerous species not previously represented in west coast collections were thus secured.

Through the absence most of the year of a head of the Department not much in the way of exchanging could be attempted. However, a collection of the local shells in the vicinity of Sulphur City, Arkansas, was received in this manner from Mr. A. J. Brown. Also some radulae of mollusks were received from Mrs. L. J. Thompson and Mr. Fred Tableman in exchange.

ACCESSIONS TO THE MUSEUM AND LIBRARY

Abbott, Mrs. E. K., Salinas, (The herbarium of the late Dr. E. K. Abbott): One hundred and fifty-five herbarium specimens from northern France, the region where the war has been fought, received by Dr. Abbott as an exchange in 1888; 400 herbarium specimens from Hillsdale, Mich., and Dekalb County, Illinois, collected by Dr. Abbott and labelled; 743 herbarium specimens from Monterey County, California, collected by Dr. Abbott, mostly not labelled; 166 specimens collected by Mrs. Joseph Clemens in Montana, Utah, and Texas, chiefly not labelled; total 1464 specimens. Gift.

Allen, Mr. C. A., San Geronimo: One ornithological specimen from Marin County. Gift.

American Museum of Natural History, New York: Three lizards from Gulf of California. Exchange.

Beck, Mr. R. H., San Jose: One thousand and ninety-six specimens of South American insects, mostly beetles. Purchase.

Bent, Mr. Edward F., San Francisco: Two bound volumes (Museum of Natural History, New York, Vols. I, II). Gift.

Berry, Dr. S. S., Redlands: Eleven lots of land- and freshwater mollusks from Western United States, a total of 65 specimens. Gift.

Bethel, Mr. E., Denver, Colorado: Two botanical specimens. Gift.

Bickle, Miss Margaret Emily, and Master John Richard Peers, Niagara Falls, Ontario, Canada: Fifty botanical specimens collected near Clive, Alberta, Canada. Gift.

- Bishop, Miss W. E., San Francisco: Mammoth tooth from Marin County, California. Gift.
- Blaisdell, Dr. F. E., 1520 Lake Street, San Francisco: One thousand five hundred and thirty-three specimens of beetles to fill vacancies in Academy's collection; 284 insects taken at Huntington Lake, California; 56 beetles, mostly from eastern states; and 189 specimens of Diptera from southern California. Gift.
- Boardman, Mrs. George C., Jr., and Sanchez, Mrs. R. B., San Francisco: A collection of Indian baskets and curios. Gift.
- Bollo, Mr. Luis Cincinato, Whitehall Building, New York: One book, South America Past and Present by Luis Cincinato Bollo. Gift.
- Borden, Mr. Ralph, Alameda: Four terrapins from Macassar, Celebes Island. Gift.
- Brittain, Mr. W. H., Department of Agriculture, Truro, Nova Scotia: Forty-three specimens of Hemiptera from Nova Scotia. Gift.
- Brown, Mr. A. J., Sulphur City, Arkansas: Two lots of land- and freshwater mollusks from Arkansas, consisting of about 150 specimens. Exchange.
- Brown, Mr. Edward J., Los Angeles: Twenty lizards from Antelope Valley, Los Angeles County, and 37 lizards and 37 frogs from southern California. Gift.
- Brown, Mr. N. E., Kew Herbarium, England: Echinocactus species, 1 photograph, 1 colored plate, and 12 tracings; mamillaria species, 3 tracings; Echinopsis species, 1 tracing; Malacocarpus, 1 colored plate; Epiphyllum, 1 tracing; Opuntia, 1 tracing; Discocactus, 2 tracings; Mesembryanthemum, 1 photograph. Gift.
- Budd, Mr. Charles G., San Francisco: One albino robin in the flesh. Gift.
- Burriss, Mr. W. S., San Francisco: One anteater's skin floor rug. Gift.
- Buttle, Mrs. Alvina, San Diego: Eighteen botanical specimens. Gift.
- Byrd, Mrs. Caroline Rixford, Canton, China: Twenty-six herbarium specimens of plants from Canton, China. Gift.
- California State Mining Bureau, San Francisco: Fossil fish imbedded in diatomaceous shale, about 5 miles south of Lompoc, California. Gift.
- Museum of Comparative Zoology, Cambridge, Massachusetts: Five salamanders from North Carolina, 2 from Kentucky, and 3 from Texas, and 2 snakes from Virginia, and 3 lizards from Florida. Exchange.
- Campbell, Mrs. Marian L., Mill Valley: Three botanical specimens. Gift.
- Canton Christian College, Canton, China: One hundred and ninety-nine specimens of plants from South China. Gift.
- Christofferson, Mr. A., San Francisco: A piece of one of the branches of a tree of *Ceanothus velutinus*, from Kitsap County, Washington. Gift.
- Clark, Prof. B. C., Berkeley: Fifty specimens of fossils from Bridgeville, California. Gift.

- Clark, Mr. B. Preston, Boston, Massachusetts: One hundred and forty-eight Hemiptera taken by Mr. J. A. Kusche at Mazatlan, Mexico. Gift.
- Clarke, Dr. F. C., Los Angeles, California: Seven hundred and eighty-four insects taken in Fresno and Napa counties. Gift.
- Clokey, Mr. Ira W., Denver, Colorado: One hundred and twenty specimens of Colorado plants; 36 specimens of plants. Exchange.
- Cole, Mr. F. R., Stanford University: Twenty-eight Diptera types, representing 19 species. Gift.
- Coleman, Mrs. Marian and Mr. R. A., San Francisco: Shark teeth found on Pacific Beach, San Diego County. Gift.
- Coleman, Mr. R. A., San Francisco: Two bottles and three packages of shells, and one piece of whalebone. Gift.
- Coy, Miss Georgie V., San Diego: One botanical specimen. Gift.
- Davis, Rev. John, Hannibal, Missouri: Two hundred and fourteen botanical specimens. Exchange.
- Davis, Mr. William T., New Brighton, N. Y.: One specimen *Scaphonotus vidus* Dej.; two specimens *Ammodonua fossor* Lec.; two specimens *Nicagus obscurus* Lec. Gift.
- Decker, Mr. Frank, Anchorage, Alaska: Mastodon tusk from Yukon River below the mouth of the Tanana. Gift.
- Dickerson, Dr. Roy E., California Academy of Sciences: Seven lots of fossils from Oregon. Gift.
- Dodge, Mr. E. A., 546 Bay St., Santa Cruz, California: One hundred and ninety-nine insects as listed: Catocalas, 27 specimens; butterflies, 5 specimens including types, male and female, of *Pamphila pawnee* Dodge; Tabanidæ, 165 specimens. Gift.
- Donovan, Mr. Vincent J., San Francisco: Two canvasback ducks. Gift.
- Eastwood, Miss Alice, California Academy of Sciences: Twenty-two moths from Mill Valley, 104 specimens of plants. Gift. Thirty Chinese food plants from Chinese vegetable gardens at Marysville, San Mateo and San Francisco, collected also in duplicate for the Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C. Expenses paid by U. S. Department of Agriculture. Exploration. Two hundred and eighty-two specimens of exotics, chiefly from Golden Gate Park, 34 specimens from Mendocino County, 456 specimens from southern California, chiefly from Los Angeles and San Diego counties; 504 specimens from Arizona consisting of 40 from Bowie, 13 from Casa Grande, 27 from Sacaton, 32 from Tucson, 25 from Globe, 6 from Ash Fork, 79 from Prescott, 44 from Topock, 17 from Yuma and Bard and 221 from Apache Trail; 417 specimens from New Mexico, chiefly from Silver City and country adjacent. Total 1693 besides numerous duplicates. Exploration. Expenses paid by Arnold Arboretum.
- Ehrhorn, Mr. E. M., Honolulu: Seven jars of natural history specimens, mostly marine invertebrates from the Hawaiian Islands. Three jars and 13 phials of crustaceans and miscellaneous invertebrate material, and one large crab from Kaiwi Channel. Gift.

- Erwin, Mr. R. P., Boise, Idaho: Ten snakes from Ketchum, Idaho. Gift.
- Evermann, Dr. Barton Warren, California Academy of Sciences: Two volumes (Natural History Survey of Illinois, Vol. III, and Atlas), one botanical specimen, 1 snake and 1 lizard from Mount Wilson, 1 snake from Contra Costa County. Gift. Two snakes and 2 lizards from Glenwood, Santa Cruz County; 2 snakes from Marin County, 12 ornithological specimens from Alameda County and 11 from Santa Cruz County; 7 land mollusks from Hoh River, Washington, 10 from San Miguel Island, 3 from Whale Rock, Crescent City, 1 from Mowry, 5 from Santa Cruz Island and 20 from Oakland. Exploration.
- Fauntleroy, Miss Sophie, Santa Barbara: Three specimens of plants from Ventura County. Gift.
- Ferris, Mrs. Roxana, Stanford University: Two hundred specimens of plants from desert region of Arizona and California and 346 specimens of California plants. Purchase.
- Fox, Mr. C. L., 1621 Vallejo St., San Francisco: Forty specimens of mounted Lepidoptera (moths) and 93 insects from California; 258 insects mostly from Mount Rainier, Washington, and 97 insects of all orders. Gift.
- Geister, Mrs. Elisa, 72 Lundy Lane, San Francisco: One Kinkajou (*Cercoleptes caudivolvulus*) from Central America. Gift.
- Ghirardelli, Mrs. D., San Francisco: Fourteen specimens of plants from the Grand Canyon. Gift.
- Golden Gate Park, San Francisco: One downy swan, 1 male ostrich and 1 female ostrich. Gift.
- Gorton, Mr. C. R., La Jolla: Seven specimens of *Helix pissnia*, 1 botanical specimen, and 6 land mollusks from La Jolla. Gift.
- Grant, Major Chapman, Oklahoma City: Twenty beetles from Globe, Arizona, and 51 insects from Oklahoma. Gift.
- Hanna, Dr. G. Dallas, California Academy of Sciences: Eight thousand four hundred and sixty four specimens of mollusks from Alaska, 118 land mollusks from Fire Island, and 72 specimens of plants from St. Paul Island, Alaska, collected by Mr. and Mrs. George Haley. Gift.
- Harris, Mr. G. D., 126 Kelvin Place, Ithaca, New York: One book, Bulletin of American Paleontology, Vol. VI, 1919. Gift.
- Hawkins, and Phillips, Messrs., San Francisco Police Department: One Great Blue Heron, from Mud Lake near Boy Scouts' Camp. Gift.
- Heim, Mr. William, California Academy of Sciences: Fifteen ornithological specimens from Marin County, 5 specimens from Alameda County, 6 specimens from San Francisco County, 50 specimens of birds and mammals from Yosemite National Park. Exploration.
- Henry, Prof. J. K., Vancouver, B. C.: One botanical specimen. Gift.
- Herrin, Mr. William F., San Francisco: Eleven specimens of plants for identification with duplicates. Gift.
- Hickman, Mr. J. B., Aromas, San Benito County: One botanical specimen. Gift.

- Hook, Miss Marjorie, 1858 Fell Street, San Francisco: One pure albino gopher. Gift.
- Hopping, Mr. Ralph, Berkeley, California: Thirty-eight insects from southern California, and 144 insects from other localities. Gift.
- Huff, Captain Charles P., United States Navy, donated through Sergeant Patrick McGee, Golden Gate Park, San Francisco: One specimen of Scorpion obtained at Kemolina Point, Honduras. Gift.
- Huguenin, Mr. J. C., San Francisco: Fifty-two insects with other biological material. Gift.
- Hunt, Mr. H. H., San Francisco: One snake from Escalon, Calif. Gift.
- Huntington, Miss Marion, San Francisco: One botanical specimen. Gift.
- Israelsky, Mr. Merle, 464 Noe St., San Francisco: Twenty-five Merced Pliocene fossils, and 22 specimens of land and freshwater mollusks from Cazadero. Gift.
- Jones, Mr. Vincent, San Francisco: Two specimens of plants. Gift.
- Kelly, Mrs. G. Earle, Alameda: Sixteen botanical specimens from Plumas County, California, for identification, and one other botanical specimen. Gift.
- Kip, Mr. Frederic E., 38 East 25th St., New York: One book, (Tariff Facts and Effects from 1789 to 1916.—and Equal Opportunity For All.—F. E. Kip). Gift.
- Kneiss, Mrs. Earl, 1150 Clay St., San Francisco: Seventeen packages of corals. Gift.
- Kusche, Mr. J. August, San Francisco: Five ornithological specimens from Los Angeles County, 1 specimen from San Mateo County, 5 specimens from Ketchikan, Alaska; 1 set (6 eggs and nest) Dotted Cañon Wren from Nogales, Arizona; 2 scorpions from Nogales, Arizona; three lizards from Hawaiian Islands; a few insects from Hawaiian Islands; 10 bottles of shells and a quantity of Pele's hair from the Hawaiian Islands; 4 ferns, 1 bundle lichens, 1 bundle mosses and 1 bundle flowering plants. Gift.
- Leach, Mr. E. R., Piedmont: Fifteen beetles. Gift.
- League to Enforce Peace, New York: One book (Win the War for Permanent Peace). Gift.
- Lepper, Mr. Gerge Henry, Pittsburg, Pa.: One book. Gift.
- Lewis, Mr. W. C., Tiburon: One botanical specimen for identification and one lizard from San Francisco. Gift.
- Little, Mr. Luther, California Academy of Sciences: Five snakes, one frog and one salamander from Lake County, 1 snake from Napa County, 2 snakes and 3 lizards from Mendocino County; 2 freshwater mollusks from Harbin Springs, and 2 bats (*Eumops californicus*). Exploration.
- Lovett, Prof. A. L., Corvallis, Oregon: Twenty-four types of Diptera, representing 22 species. Gift.
- Mailliard, Hon. John W., San Francisco: Publications of the California Academy of Sciences and the University of California, and other scientific papers. Gift.

- Mailliard, Messrs. John W. and Joseph, San Francisco: Ten thousand seven hundred and eighty-five bird skins and 3270 sets of eggs of 612 species, number being 12,431 eggs. Gift.
26 ornithological specimens from Marin County, 30 specimens from Lake County, 28 specimens from Mendocino County, and 20 specimens from Colusa County. Gift.
- Mailliard, Mr. Joseph, California Academy of Sciences: Twenty specimens of insects from near Hearst, Mendocino County. Exploration.
- Mailliard, Mr. J., and Little, Mr. Luther, California Academy of Sciences: Two ornithological specimens from San Francisco County, 150 from Marin County, 433 from Lake County, 233 from Mendocino County, 83 from Napa County, 28 from Sonoma County, 12 from Contra Costa County and 4 from Colusa County; 190 mammals and 50 oölogical specimens collected in Marin, Napa, Lake, Mendocino and Colusa counties, California. Exploration.
- Malloch, Mr. J. R., Urbana, Ill.: Fourteen separates from various publications. Gift.
- Martin, Mrs. Emma, Glenwood, Calif.: One Cedar Waxwing. Gift.
- Martin, Mr. J. O., Berkeley, Calif.: One hundred and thirty-one insects. Gift.
- Massachusetts, Commonwealth of (Humane Society), Boston, Mass.: One book. Gift.
- Mathews, Mr. Henry E., San Francisco: One book (Reminiscences James Lick Trust). Gift.
- McDonald, Mr. A., San Francisco: One albino gopher. Gift.
- McGee, Sergeant Patrick H., Golden Gate Park, San Francisco: Fifteen Quail eggs, one set of three Black Swan eggs. Gift.
- McLaren, Mr. John, Park Lodge, Golden Gate Park, San Francisco: The Gardeners' Chronicle, 2 volumes; Park and Cemetery, 1 volume. Gift.
- McLellan, Miss M. E., California Academy of Sciences: Two volumes, Mountain Wild Flowers of Canada, and Philippine Bureau of Science, Annual Report 1912. Gift.
- Meiere, Mrs. Ernest, San Francisco: Six botanical specimens. Gift.
- Miller, Mrs. Charles E., Berkeley: Twenty-two botanical specimens. Gift.
- Miller, Mrs. Charles E., and Swain, Mrs. Alonson, Berkeley: Sixty-eight botanical specimens from Santa Cruz Island. Gift.
- Morse, Mr. I. H., 1691 Bush St., San Francisco: One old mill stone. Gift.
- National War Garden Commission, Washington, D. C.: One bronze medal. This medal is a replica, in bronze, of medals in silver-gilt which have been struck for presentation to President Wilson and the heads of the allied governments. Gift.
- Niagara Fire Insurance Company, through Mr. Parrish, San Francisco: Six pictures of Niagara Falls taken in 1874 by J. Zyback. Gift.
- Noyes, Mr. Russell, Afognak, Alaska: Sixty botanical specimens from Alaska. Gift.
- Oldroyd, Mrs. Ida S., Stanford University: Twenty-five mollusks from Monterey and 2 mollusks from Gatun Cut. Gift.
- Orcutt, Mr. C. R., La Jolla, Calif.: Two lots of small marine mollusks from Magdalena Bay, consisting of about 100 specimens. Gift.

- Otis, Mr. I. C., Seattle, Wash.: One hundred and sixty-four specimens of plants of Washington. Gift.
- Parish, Mr. S. B., San Bernardino, Calif.: Sixty-six botanical specimens from southern California. Gift.
- Peers, Miss Susie, Burlingame: One snake from San Francisco. Gift.
- Phillips, Miss, San Francisco: Three volumes. Gift.
- Reed, Mr. C. A., Santa Cruz, Calif.: Five botanical specimens. Gift.
- Reynolds, Mrs. L. R., City of Mexico: Two specimens of plants. Gift.
- Rolph, Mayor, San Francisco: One turtle from Pacific Ocean between Yokohama and San Francisco. Gift.
- Ryan Fruit Company, San Francisco: One snake from Guatemala. Gift.
- Slevin, Mr. L. S., Carmel: Forty specimens of insects in alcohol. Gift.
- Slevin, Mr. J. R., California Academy of Sciences: One thousand three hundred and ninety-three reptiles and amphibians from Lower California; 28 lizards from Anacapa Island; 3 snakes, 73 frogs, 92 lizards, and 3 salamanders from Santa Cruz Island; 2 lizards from San Miguel Island; 49 lizards, 19 toads, 2 snakes, and 1 salamander from Mecca, Calif.; 8 lots of mollusks containing about 65 specimens of land and freshwater shells from Lower California; 1020 insects from Lower California. Exploration. Four lizards from Nicaragua. Gift.
- Smith, Miss E. S., San Francisco: One botanical specimen from Bird's Landing. Gift.
- Snyder, Prof. J. O., Stanford University: Twenty-two birds' eggs. Gift.
- Stanford University: Seventy-one snakes, 341 lizards, 68 frogs, 118 toads, 10 turtles, and 1 salamander. Purchase.
- Stephens, Dr. W. Barclay, San Francisco: One botanical specimen for identification. Gift.
- Stoner, Mr. R. G., Bakersfield, Calif.: Two lots of fossils from southeastern Nevada. Gift.
- Strohbeen, Mr. J. P., 15 Pennsylvania Ave., Santa Cruz, Calif.: One specimen of large Scarabid from Columbia, South America (collected by Mrs. John Boyle). Gift.
- Summerton, Miss Amelia: One book (The Heavens, by Amédée Guillemin). Gift.
- Sutcliffe, Mrs. E. C., San Francisco: Fifty-five botanical specimens from Plumas and Sierra counties for identification and 18 botanical specimens. Gift.
- Swann, Mr. H., Kirke: Two pamphlets. Gift.
- Thompson, Mrs. Lillian Dyer, 18 Aspen Road, Swampscott, Mass.: Three radulæ and shells of *Viviparus contectoides*, *Buccinum undatum*, and *Trachydermon hartwegi*, 21 mollusks and 24 microscopic mounts of molluscan radulæ. Exchange.
- Townsley, Mr. F. S., Chief Park Ranger, Yosemite National Park: One skin and skeleton of mountain beaver, 1 gray squirrel, 1 ring-tailed cat, 1 cougar skin, 1 skeleton *Bassariscus* sp., and 1 German trout. Gift.
- Turner, Mrs. G. M., Hollywood: Two botanical specimens for identification. Gift.

- Underwood & Underwood, Arlington, New Jersey: Five stereoscopic views, and 7 stereopticon slides. Gift.
- United States Forest Service, through Mr. R. F. Hammatt, 114 Sansome St., San Francisco: One reel moving picture film of elk. Gift.
- United States National Herbarium, Washington, D. C.: Three hundred and sixty-five miscellaneous specimens of plants. Exchange.
- Urbahns, Mr. T. D., 2610 Bancroft Way, Berkeley, Calif.: Thirteen specimens of *Hippiscus californicus* (grasshoppers) from Orland, Glenn County, Calif. Gift.
- Van Denburgh, Dr. John, California Academy of Sciences: Two hundred and fifteen salamanders, 16 frogs, 6 toads, 1 lizard and 1 snake from State of Washington. Exploration. One frog from San Mateo County. Gift.
- Van Duzee, Mr. E. P., California Academy of Sciences: Two hundred and fifty-three entomological specimens from Anacapa Island; 1028 specimens from Santa Cruz Island; 132 specimens from Prince Island; 223 specimens from San Miguel Island; 218 specimens from Santa Rosa Island; 111 specimens from Santa Barbara; 1628 specimens from Monterey and San Luis Obispo counties; 1002 specimens from Santa Cruz; 617 insects from San Francisco, Alameda, and Marin counties; 5717 insects collected during explorations in Fresno, San Mateo, Contra Costa, and San Joaquin counties, in August and September; 100 specimens of land shells from San Miguel Island. Exploration.
- Van Duzee, Mrs. Helen, San Francisco: Four hundred and forty-four spiders, and 260 insects taken at Huntington Lake, California. Gift.
- Van Duzee, Mr. Millard C., Buffalo, N. Y.: Nine types of Diptera, representing 9 species. Gift.
- Van Dyke, Dr. E. C., University of California: Eighty-two miscellaneous insects, and 15 insects, mostly Hemiptera, from Berkeley. Gift.
- Wall, Mrs. L. S.: Four botanical specimens. Gift.
- Wallace, Mr. Paul, San Jose, Calif.: Two snakes. Gift.
- Walther, Mr. Eric, San Francisco: One hundred and five botanical specimens, chiefly exotics. Gift.
- Walter, Mr. Frank, Los Angeles, Calif.: Sixteen specimens of exotics sent for identification. Gift.
- Weil, Miss Ida, Fort Whipple, Prescott, Arizona: Three botanical specimens for identification. Gift.
- Westdahl, Mrs. F., San Francisco: One opium pipe and chop sticks from China; beads, 15 shells and 2 sponges from the Philippine Islands. Gift.
- Wilson, Mr., United States Weather Bureau, San Francisco: Bottle containing sample of volcanic deposit taken at Kodiak, Alaska, June 9, 1912, from eruption of Katmai Volcano June 6-8, 1912. Gift.
- Wisner, Mr. Einar, 1439 Forty-third Ave., San Francisco: One male flicker. Gift.
- Wood, Dr. Casey Albert, 7 West Madison St., Chicago, Ill.: One book (The Fundus Oculi of Birds by Casey Albert Wood). Gift.

PROCEEDINGS

Fourth Series

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